

REMARKS

Claims 11-25 are pending in the present application. No amendment has been made to the pending claims. Reconsideration of the claims is respectfully requested.

CLAIM REJECTIONS

35 U.S.C. 102(b)/103(a) Rejection

The Examiner has rejected claims 11-25 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) for purported obviousness over U.S. Patent No. 5,340,782 to Langenohl ("Langenohl"). Claims 11 and 18 are the only independent claims and dependent claims stand or fall with their independent claim. Applicant believes that Langenohl does not teach or suggest every element of amended claims 11 and 18, so anticipation and obviousness do not exist.

Claim 11 teaches a gunning refractory composition consisting essentially of 40 – 90 dry weight percent of amorphous silica aggregates, up to 40 dry weight percent of alumina-based compounds, 10 – 15 dry weight percent of clay, 0.2 – 2.0 dry weight percent of a chemical binder and further containing 2 – 8 percent of water. Claim 18 teaches conveying the composition of claim 11 to a gunning nozzle, mixing the refractory composition with water in the gunning nozzle, and gunning the obtained mixture against the hot refractory wall.

Langenohl teaches ramming compositions rather than the gunning compositions of the present invention. The requirements for these compositions are completely different. The compositions of Langenohl are rammed into place by hand, using mallets or by conventional pneumatic hammers (col. 1, lines 15 – 18). Geometrical constraints usually necessitate the cooling of a surface that is to be repaired (in the horizontal position) with a ramming composition. Gunning compositions, on the other hand, are projected (gunned) against a hot wall (generally vertical). A gunning composition must have a property that is not required of a ramming composition, namely, a gunning composition must stick immediately to a hot wall against which it is projected. Consequently, it would not be obvious to a person skilled in the art that a ramming composition would be suitable for a gunning application.

Claims 18 to 25 are specifically directed to gunning processes. Langenohl does not disclose any process other than ramming. Langenohl, therefore, neither teaches nor suggests the processes of claims 18 – 25.

The Langenohl composition differs from that of the present invention in its constitution as well as in its function. Specifically, Langenohl's teachings with respect to the plasticizer component do not anticipate or suggest the currently claimed formulation.

Langenohl makes a number of references to plasticizer:

- a) a general statement (col. 2, lines 27-34) referring to 1-20 wt. %;
- b) a more precise statement (col. 3, lines 4-9 as well as claim 3) referring to 1-10 wt. %;
- c) specific examples (examples 1 to 11) with 5 and 7.5 wt. %.

However, the person skilled in the art, in developing or considering a formulation for use, would rely only on statements (b) and (c) for the following reasons:

- Statement (a) clearly relates to the state of the art rather than to any specific formulation;
- It is only in statements (b) and (c) that additional details about the formulation are provided.

Therefore, a person skilled in the art wishing to develop or duplicate a working formulation would consider the widest range disclosed in statements (b) and (c) (1 to 10 wt. %) as defining the technical usable limits for the plasticizer.

The plasticizer range taught by Langenohl does not overlap or adjoin the plasticizer range claimed in the present application. Although Langenohl recites a value of 10 wt. % as the upper end of the plasticizer range and the present application recites a value of 10% as the lower end of the plasticizer range, the composition representing 100% differs in the two recitations. When Langenohl provides compositions (see, for example, col. 3, lines 4 – 9), water and the chemical binder (phosphoric acid) are not included. It is also apparent that, in all the examples in Table II, phosphoric acid is never included in the 100 wt. % composition; the percentages of mix components add to 100% but the percentage of phosphoric acid is relegated to the "Plus Additions" heading. On the other hand, in the present application, the chemical binder is included in the 100% composition (see Examples 1 and 2). Only the water content has been excluded from the dry composition.

The component percentages expressed by Langenohl are decreased when they are expressed according to the conventions of the present application. The following calculation, using the maximum amount of clay and based on Example 3 of Langenohl, illustrates this:

Silica	70%	Shown as 72.5%, but decreased to accommodate an increase in the percentage of clay to the maximum amount (10%).
Calcined alumina	20%	
<u>Bentonite clay</u>	<u>10%</u>	
TOTAL	100%	Does not include 7% phosphoric acid

A different result is obtained if this composition is expressed according to the conventions of the present application:

Silica	65.4%
Calcined alumina	18.7%
Bentonite clay	9.3%
<u>Chemical binder</u>	<u>6.5%</u>
TOTAL	100%

If the maximum amount of clay is 10% for compositions that do not take the chemical binder into account, it will never reach 10% when the compositions do take the chemical binder (1 to 20%) into account.

Consequently, there is no overlap between the Langenohl compositions and those of the present inventions. With respect to Langenohl, the compositions of the present invention are novel.

In view of the above, each of the claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and pass this application to issue.

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Respectfully submitted,

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